

CLAIMS

1. An apparatus for determining a rate to be applied in respect of a data set comprising a value for at least one variable attribute in an electronic system or process,
5 comprising:
an input (105) for receiving the data set;
a rate modelling component (115) arranged to store a model comprising:
(i) data (205, 210) defining a rating space having at least one dimension defined by an attribute of the electronic system or process;
10 (ii) a rating vector definition comprising at least one rate parameter;
and
(iii) data (225, 230) which defines distinct regions in the rating space (205, 210) over which the defined rating vector is invariant, and which defines the respective invariant rating vector (235) for each distinct region; and
15 rate determining means arranged, on receipt of the data set, to identify a corresponding one of the distinct regions (225, 230), the respective invariant rating vector (235) and hence the rate to be applied in respect of the data set.
2. An apparatus according to Claim 1, further comprising:
20 calculating means for calculating an output (110) in respect of the data set by inputting one or more rate parameters (235) of the identified invariant rating vector into a predefined formula (220).
3. An apparatus according to Claim 2, wherein the model further comprises a rule
25 (205) for selecting a predefined formula (220) in respect of the data set from among a plurality of predefined formulae (220).
4. An apparatus according to Claim 1, 2 or 3, wherein in (i) the rating space (205, 210) is defined in terms of an orthogonal set of attributes of the electronic system or
30 process.
5. An apparatus according to any one of the preceding claims, wherein the model further comprises at least one rule (205) for selecting an appropriate rating space (205, 210), from among a plurality of rating spaces (205, 210) defined in the model, on the basis
35 of at least one attribute represented in the data set.

- 6 An apparatus according to any one of the preceding claims, further comprising:
an interface (120) to the modelling component (115) for processing data received
at the interface and for making corresponding updates to the model, wherein the received
5 data are formatted according to a pre-defined markup language and wherein different data
elements of the pre-defined mark-up language relate to different entities within the model.
7. An apparatus according to Claim 6, wherein the predefined markup language is
defined according to the extensible markup language standard.
- 10 8. An apparatus according to any one of the preceding claims, wherein the defined
rating vector relates to the rate of utilisation of one or more resources associated with the
electronic system or process.
- 15 9. An apparatus according to any one of the preceding claims, wherein the defined
rating vector relates to a tariff to be applied in respect of use of the electronic system or
process.
10. A method for determining a rate to be applied in respect of a product or service,
20 comprising:
(i) defining a rating space (205, 210) having at least one dimension defined by
an attribute of the product or service;
(ii) defining a rating vector comprising at least one rate parameter;
(iii) determining distinct regions (225, 230) in the rating space (205, 210) over
25 which the defined rating vector is invariant and defining values (235) for the at least one
rate parameter in the invariant rating vector for each distinct region (225, 230);
(iv) for a specified instance of the product or service, identifying a
corresponding one of the distinct regions (225, 230) from (iii), the respective invariant
rating vector (235) and hence the rate to be applied.
- 30 11 A method according to Claim 10, further comprising the step:
(v) using the respective invariant rating vector (235) in a predefined formula
(220) to calculate an output (110) in respect of the specified instance of the product or
service.

12. A method according to Claim 10 or Claim 11, wherein at step (i) the rating space (205, 210) is defined in terms of an orthogonal set of dimensions for the product or service.

5 13. A method according to Claim 10, 11 or 12, wherein the rate relates to the rate of utilisation of a resource in respect of the product or service.

14. A method according to Claim 10, 11 or 12, wherein the rate relates to a charging rate to be applied in determining a price for use of the product or service.

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15. A method of generating a model of rates to be applied in respect of a product or service, comprising the steps of defining, in the model:

(i) a rating space (205, 210) for the product or service having at least one dimension defined by an attribute of the product or service;

15 (ii) a rating vector definition comprising at least one rate parameter;

(iii) at least one distinct region (225, 230) in the rating space (205, 210) over which the defined rating vector is invariant; and

(iv) in respect of each distinct region from (iii), values (235) for the at least one rate parameter of the respective rate vector.

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16. A method according to Claim 15, further comprising the steps of defining, in the model:

(v) at least one category (200) of the product or service for which a common rating space (205, 210) applies; and

25 (vi) at least one rule for selecting an applicable rating space (205, 210), from among a plurality of rating spaces (205, 210) defined in the model, to be applied in respect of the at least one category (200) defined in (v).

17. A method according to Claim 16, further comprising the steps of defining, in the
30 model:

(vii) a reference to a formula (220) for use in calculating an output (110) in respect of the at least one category (200) identified in step (v), the formula (220) being a function of at least one unspecified dimension and at least one rate parameter; and

(viii) in respect of the at least one category (200) defined in (v), an association (210) between the at least one unspecified dimension in the formula (220) and a dimension for the applicable rating space (205, 210).

5 18. A method according to Claim 17, further comprising the step of defining, in the model:

(ix) an association between the at least one rate parameter in the formula (220) and a rate parameter (235) of the rating vector defined for the applicable rating space (205, 210).

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19. A method for determining the utilisation of a resource in respect of an instance of a product or service with reference to a rate model generated for the product or service by the method of Claim 16 or 17, comprising the steps of:

- 15 (i) receiving (105) data defining an instance of the product or service;
- (ii) identifying a distinct region (225, 230) in a rating space (205, 210) for the product or service containing the defined instance received (105) at step (i);
- (iii) identifying the invariant rating vector (235) applicable to the identified region (225, 230);
- 20 (iv) identifying a formula (220) to be applied to instances of the product or service; and
- (v) inputting the at least one rate parameter value (235) of the invariant rating vector and the received data (105) defining the instance into the formula (220) to calculate (100) the utilisation of the resource for the instance of the product or service.

25 20. An apparatus according to any one or claims 1 to 7, for use in determining a rate of utilisation of a resource in respect of a product or service.